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NATIONAL SCIENCE FOUNDATION

Request for Information on the Federal Big Data Research and Development Strategic Plan Update

AGENCY: Networking and Information Technology Research and Development (NITRD) National Coordination Office (NCO), National Science Foundation (NSF).

ACTION: Request for Information (RFI).

SUMMARY: The NITRD NCO and NSF, as part of the NITRD Big Data interagency working group (BD IWG), request input from all interested parties as the IWG prepares updates to the *Federal Big Data Research and Development Strategic Plan*. Through this RFI, the NITRD NCO seeks input from the public, including academia, government, business, and industry groups of all sizes; those directly performing Big Data research and development (R&D); and those directly affected by such R&D, on ways in which the strategic plan should be revised and improved. The public input provided in response to this RFI will assist the NITRD BD IWG in updating the *Federal Big Data Research and Development Strategic Plan*.

DATES: Interested persons are invited to submit comments on or before 11:59pm (ET) on July 29, 2022.

ADDRESSES: Comments submitted in response to this notice may be sent by any of the following methods:

- *E-mail,* BDStrategicPlan-RFI@nitrd.gov: Email submissions should be machine-readable and not be copy-protected; submissions should include "RFI Response: Federal Big Data Research and Development Strategic Plan Update" in the subject line of the message.
- *Mail,* Attn: Ji Lee, NCO, 2415 Eisenhower Avenue, Alexandria, VA 22314, USA.

Instructions: Response to this RFI is voluntary. Each participating individual or institution is asked to submit only one response. Submissions must not exceed 10 pages in 12-point or larger font, with a page number provided on each page [*optional*]. Include the name of the person(s) or organization(s) filing the comment in your response. Responses to this RFI may be posted online at https://www.nitrd.gov. Therefore, we request that no business proprietary information, copyrighted information, or sensitive personally identifiable information be submitted as part of your response.

In accordance with FAR 15.202(3), responses to this notice are not offers and cannot be accepted by the Government to form a binding contract. Responders are solely responsible for all expenses associated with responding to this RFI.

FOR FURTHER INFORMATION CONTACT Ji Lee at BDStrategicPlan-RFI@nitrd.gov or (202) 459-9679. Individuals who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 1-800-877-8339 between 8 a.m. and 8 p.m. (ET) Monday through Friday.

SUPPLEMENTARY INFORMATION:

Background: The NITRD Subcommittee of the National Science and Technology Council coordinates multiagency R&D programs to help ensure continued U.S. leadership in networking and information technology, satisfy the needs of the Federal Government for advanced networking and information technology, and accelerate development and deployment of advanced networking and information technology. In 2016, the NITRD Subcommittee released the *Federal Big Data Research and Development Strategic Plan*. The plan drew upon activities started under the Big Data Research and Development Initiative that the Obama Administration launched in 2012 to harness benefits from the many rich sources of Big Data.

The 2016 strategic plan identified seven strategies representing key areas for Big Data R&D that Federal agencies could use when developing or expanding their individual Big Data R&D plans:

- *Strategy 1: Create next-generation capabilities by leveraging emerging Big Data foundations, techniques, and technologies.*
- *Strategy 2: Support R&D to explore and understand trustworthiness of data and resulting knowledge, make better decisions, enable breakthrough discoveries, and take confident action.*
- *Strategy 3: Build and enhance research cyberinfrastructure that enables Big Data innovation in support of agency missions.*
- *Strategy 4: Increase the value of data through policies that promote sharing and management of data.*

- *Strategy 5: Understand Big Data collection, sharing, and use with regard to privacy, security, and ethics.*
- *Strategy 6: Improve the national landscape for Big Data education and training to fulfill increasing demand for both deep analytical talent and analytical capacity for the broader workforce.*
- *Strategy 7: Create and enhance connections in the national Big Data innovation ecosystem.*

In the decade since the Big Data Research and Development Initiative was launched, significant progress has been made in many research areas, and a Big Data innovation ecosystem continues to evolve among Federal agencies, leading to enhanced knowledge discovery and more informed decision-making. Instrumented systems and environments are becoming the norm, large numbers of heterogeneous sensors and sensor networks are being deployed to collect vast amounts of data, and new capabilities are emerging to integrate and organize this information in a timely fashion. There have been significant changes in the ways data are captured, used, stored, and shared.

In response, the NITRD BD IWG is revisiting the strategies listed in the original plan to identify areas that should continue to be priority areas for federally funded research, new areas of risk or opportunity, and options for leveraging collaborations with other segments of the data innovation ecosystem to accelerate innovation, improve inclusive and equitable access, and broaden participation in Big Data R&D.

Objectives: The NITRD NCO seeks input on potential revisions to the 2016 *Federal Big Data Research and Development Strategic Plan* to reflect priorities

related to Big Data R&D. Responders are asked to answer one or more of the following questions in response to the RFI:

1. What areas of research or topics of the 2016 *Federal Big Data Research and Development Strategic Plan* should continue to be a priority for federally funded research and require continued Federal R&D investments? What areas of research or topics of the plan no longer need to be prioritized for federally funded research?
2. What challenges or objectives not included in the 2016 *Federal Big Data Research and Development Strategic Plan* should be strategic priorities for federally funded Big Data R&D? Discuss what new capabilities would be desired, what objectives should guide such research, and why those capabilities and objectives should be strategic priorities.
3. What are emerging and future scientific and technical challenges and opportunities that are central to enabling extraction of knowledge and insight from Big Data across the data lifecycle (including capabilities for collection, storage, access, analysis, and reuse of Big Data)? Which of the challenges and opportunities are still appropriate for Federal research funding?
4. What are appropriate models for partnerships among government, academia, and industry in Big Data, and how can these partnerships be effectively leveraged to enhance innovation in Big Data R&D?
5. How do we nurture, develop, and enhance a diverse, inclusive, and sustainable workforce of cyberinfrastructure professionals and practitioners for Big Data R&D? What are some effective ways to broaden participation in Big Data R&D?

6. What are the future national-level use cases that will drive future federally funded Big Data R&D? Please describe these uses cases and applicable research that the R&D will drive. Are there other industry or international initiatives that are synergistic with federally funded Big Data research?

Reference: *Federal Big Data Research and Development Strategic Plan* (May 2016): *https://www.nitrd.gov/pubs/bigdatardstrategicplan.pdf*

Submitted by the National Science Foundation in support of the NITRD NCO on 06/28/2022.

Suzanne H. Plimpton,

Reports Clearance Officer,

National Science Foundation.

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